

**IN THE SPECIFICATION**

Please replace the paragraph on page 7, line 2 with the following paragraph:

Referring back to Fig. 5, a portion of the ASE of light amplified by the active layer 511 is reflected by the AR coating layer 515 having reflectivity of  $R_6$ , and the remainder of the ASE of light is outputted. The outputted light reaches the optical waveguide 520 and is then reflected by the broad-band reflector 530, thereafter. The reflected light is inputted back to the active layer 511 of the semiconductor optical amplifier 510 through the AR coating layer 515, amplified by the semiconductor optical amplifier 510, and ~~then~~ outputted through the AR coating layer 514. ~~That is, in~~ In the present invention, the high reflection coating layer for reflecting the output light is located ~~at the outside of the semiconductor optical amplifier.~~ The high reflection coating layer being outside of the semiconductor optical amplifier ~~and this in turn has an affect of~~ contributes to lowering of the gain ripple. The gain ripple is caused by a Fabry-Perot mode generated due to the coherence ~~of light~~, generated by injecting external current, between both ends of the active layer of the semiconductor optical amplifier. ~~Accordingly, in case that~~ If the reflector is located ~~at the outside of the semiconductor optical amplifier,~~ as in the present invention, the light loses its coherence when light is amplified by the active layer and reaches the reflector through the waveguide. ~~As a result, the~~ The gain ripple is ~~not generated. However,~~ minimized; although there is a slight ~~some~~ gain ripple is generated by the reflectivity, having a value above zero, at both ends of the semiconductor optical amplifier. Note that the length of the waveguide ~~has a length over is~~ several times ~~longer as the length of a coherence~~ length of the ASE of light amplified by the semiconductor optical amplifier (for example, 10[[ $\square$ ]]mm or more).

Please replace the paragraph on page 8, line 6 with the following paragraph

The construction and operation of the second embodiment are essentially the same as that described ~~above with respect to in FIG. 5.~~ However, ~~except that in FIG. 6, the broad-band light source 600 is provided with a~~ the polarization controller 640 is further provided to that controls the polarization dependence of the semiconductor optical amplifier 610. Thus, the discussion of the broad-band light source 600 is limited to that related to the polarization controller 640 and its application with respect to the broad-band light source~~similar components described in the preceding paragraphs is omitted to avoid redundancy, as they are described with respect to FIG. 5.~~ Although the semiconductor optical amplifier 610 has the polarization dependence, the polarization controller 640 serves to eliminate the polarization dependence at the output end thereof.